Revue suisse Zool. | Tome 86 | Fasc. 2 | p. 435-443 | Genève, juin 1979

# On some cave spiders from Guatemala and United States (Araneae)

by

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With 12 illustrations

## ABSTRACT

Ten species of spiders are recorded from caves in Guatemala and in the United States (Kentucky and New Mexico); two new species are described (*Neoleptoneta novaegalleciae* n. sp., *Gaucelmus strinatii* n. sp.); illustrations and comments are published on *Phanetta subterranea* (Emerton) and *Gaucelmus augustinus* Keyserling.

Prof. V. Aellen and Dr. P. Strinati during three short voyages have collected a small number of spiders in a few caves in Guatemala and in the United States (Kentucky and New Mexico). The richness and low level of knowledge of the North American cave fauna is demonstrated by the presence of two new species in this very small collection.

I thank Dr. B. Hauser (Muséum d'Histoire naturelle de Genève) for giving me in study this material and Dr. N. Platnick (American Museum of Natural History) for sending me the type of *Gaucelmus augustinus*; my wife Micha has given me her help in the preparation of the illustrations.

## Fam. LEPTONETIDAE

### **Neoleptoneta novaegalleciae** n. sp. (figs. 1-4)

Material: New Mexico, New Cave, 18.XII.76, P. Strinati leg., 1 ♂ (Holotypus, MHNG), 1 ♂.

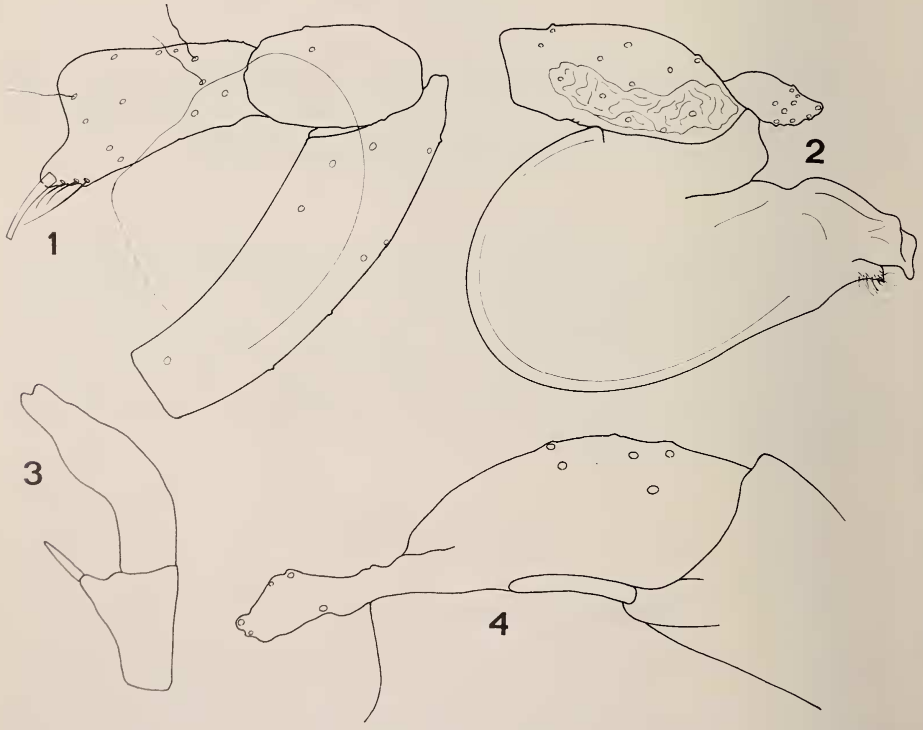
Description — ♂ (♀ unknown): prosoma whitish; six well developed eyes in the usual position; posterior eyes smaller than the rest ($^1/_3$); anterior eyes ringed with black, very near to each other, ALE separated from the PLE by $^4/_3$ of their diameter. Pedipalpus, s. figs. 1-4; Femora I with a group of 4 prolateral spines. Opisthosoma whitish.

Dimensions (in mm): prosoma 0,72 long, 0,58 wide; opisthosoma 1,00 long. Total length: 1,72.

| Legs | Femora | Patellae | Tibiae | Metatarsi | Tarsi | Total |
|---|---|---|---|---|---|---|
| I | 1,18 | lacking on both sides | | | | |
| II | 1,09 | 0,22 | 1,06 | 0,90 | 0,52 | 3,79 |
| III | 0,98 | 0,20 | 0,90 | 0,88 | 0,48 | 3,44 |
| IV | 1,25 | 0,21 | 1,26 | 1,13 | 0,65 | 4,50 |

Derivatio nominis: during the Spanish times for a not long period the territory North of Mexico was called New Galicia (Latin: Nova Gallecia).

Discussion: for the reasons for which I consider valid *Neoleptoneta*, see also Brignoli (1977); no species of the family was until now known from New Mexico, but one —*N. apachea*— was known from Arizona and many from Texas. The new species is most evidently related with the so-called "Texas fauna" (sensu Gertsch 1974) which includes a dozen of species described as *Leptoneta* by Gertsch and Chamberlin & Ivie and transferred by me (1977) to *Neoleptoneta*. By the morphology of the male genitalia



*Neoleptoneta novaegalleciae* n. sp. — Fig. 1: pedipalpus, without the tarsus; fig. 2: bulbus and tarsus, internally; fig. 3: tibia and tarsus from above; fig. 4: part of the tibia and tarsus externally. Drawn at different scales.

the new species can be easily distinguished from *N. valverdae*, *N. apachea*, *N. myopica*, *N. concinna* and *N. coeca*; by the presence of well developed eyes from *N. anopica* and *N. microps*; by differences in the position of the eyes and sometimes in the length of the legs from *N. uvaldea*, *N. devia*, *N. limpida*, *N. chisosea* and *N. furtiva*.

## Fam. Pholcidae

### **Physocyclus enaulus** Crosby, 1926

Material: New Mexico, New Cave, 18.XII.76, P. Strinati leg., 1 ♂, 1 ○ (MHNG).

Observations: described from the Carlsbad caves; relatively common in Texas (Vogel 1970) and Mexico (Gertsch 1971).

## Fam. Theridiidae

### **Achaearanea porteri** (Banks, 1896) (fig. 10)

*A. p.*, Levi 1955, *Am. Mus. Novit.* 1718, p. 30, figs. 71-75, 80-82.
*A. p.*, Levi 1959, *Bull. Mus. comp. Zool. Harv.*, 121, p. 61.
*A. p.*, Levi 1963, *Bull. Mus. comp. Zool. Harv.*, 129, p. 80.

Material: Kentucky, Gray's water cave, Park City, 23.III.77, Aellen & Strinati leg., 2 ♀♀, 3 ○ ○ (MHNG, coll. Brignoli).

Observations: a common troglophilous species, distributed from New York to Costa Rica (known also of the Bahamas and Porto Rico); already known from Kentucky. Vulva, s. fig. 10.

## Fam. Nesticidae

### **Gaucelmus strinatii** n. sp. (figs. 5, 8)

Material: Guatemala, Cueva Chirrepeck, Alta Verapaz, 6/8.IV.73, P. Strinati leg., 4 ♀♀ (Holotypus, MHNG; Paratypes MHNG, coll. Brignoli).

Description — ♀ (♂ unknown): prosoma yellow-orange, a little darkened in the ocular region; AME dark, a little smaller than the rest; anterior eyes in a line with a backward concavity, posterior line straight; anterior eyes separated by a little less than their diameter, ALE touching the PLE, PLE separated from the PME by more than the diameter of the PME, PME separated from each other by their diameter; labium longer than broad; sternum orange, nearly triangular, with a small point that separates coxae IV by less than their diameter. Chelicerae with 3 strong superior and 4-5 very small inferior teeth; pedipalpus with terminal claw; yellowish legs, with many hairs, but no spines. Opisthosoma rounded, hairy, grayish, with unclear darker markings; large colulus; epigyne, s. fig. 5; extremely simple; vulva, s. figs. 8, with large bursae and roundish spermathecae, with very visible fertilization ducts.

Dimensions (in mm): prosoma 2,25 long, 1,85 wide; opisthosoma 3,88 long. Total length: 6,13.

| Legs | Femora | Patellae | Tibiae | Metatarsi | Tarsi | Total |
|---|---|---|---|---|---|---|
| I | 6,12 | 1,18 | 5,55 | 5,68 | 2,30 | 20,83 |
| II | 4,62 | 1,05 | 3,85 | 3,92 | 1,82 | 15,26 |
| III | 2,55 | 0,80 | 1,85 | 2,12 | 1,20 | 8,52 |
| IV | 4,42 | 0,90 | 3,12 | 3,25 | 1,62 | 13,31 |

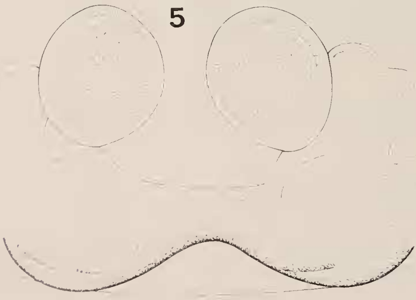
Derivatio nominis: this species is named after its collector, Dr. Pierre Strinati.

Discussion: until now very little has been published on the North American Nesticidae; the apparent revalidation of the genus *Gaucelmus* Keyserling, 1884 by Gertsch (1971) has not even been followed by a redescription of the generotype. Thanks to Dr. Platnick I could examine the types of *G. augustinus* Keyserling, 1884 (3 ♀♀, 1 ○; labels: *Gaucelmus augustinus* Keys., St. Augustine, Florida; Coll. Marx nº 121, U.S. Nat. Mus. Coll. nº 1632, Cotype).

The specimen agree in most characters with *G. strinatii* n. sp.; the vulva (fig. 6-7) is of the same general type, but is easily distinguishable, specially by the apparently more sclerotized bursa (the specimen were very old, and the examination of the vulva of the Nesticidae is not easy).

Following Gertsch (1971) *G. augustinus* would range from Florida to Texas and South through Mexico into Central America (sic).

By the vulva *G. strinatii* n. sp. can be easily distinguished also from *G. calidus* Gertsch, 1971 from Mexico (see also Brignoli 1972).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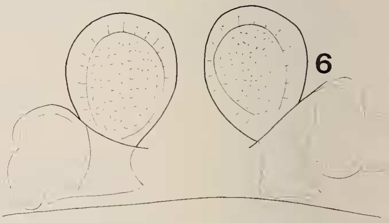
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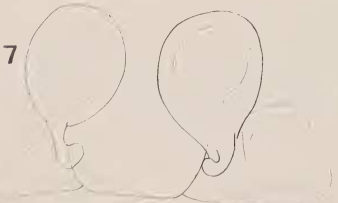
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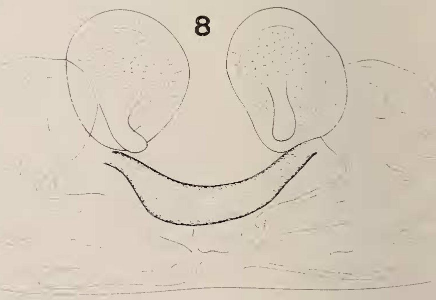
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*Gaucelmus strinatii* n. sp. — Fig. 5: epigyne/vulva from the outside; fig. 8: vulva from the inside. *Gaucelmus augustinus* Keyserling; fig. 6: epigyne/vulva from the outside; fig. 7: vulva from the inside. At the same scale.

The fourth species of the genus is *G. santaanae* (Kraus, 1955) *comb. nov.* (described as *Theridion*) from El Salvador; Levi (1959: 80) attributed this species, with no comments, to the Nesticidae. The illustration of the vulva of *G. santaanae* is apparently incomplete; this species would seem nearer to *G. augustinus* than to *G. strinatii*.

## Fam. MYSMENIDAE

### **Maymena mayana** (Chamberlin & Ivie, 1938)

Material: Guatemala, Cueva Chirrepeck, Alta Verapaz, 6/8.IV.73, P. Strinati leg., 3 ♀♀, 1 ♂ (MHNG).

Observations: a common troglophilous species in Mexico and Guatemala.

## Fam. LINYPHIIDAE

### **Phanetta subterranea** (Emerton, 1875) (fig. 12)

Material: Kentucky, Hensley Cave, Knob Lick, 23.III.77, Aellen & Strinati leg., 2 ♀♀ (MHNG, coll. Brignoli).

Description: a small (1,75 mm long) Linyphiid, similar by habitus to a *Porrhomma* or a *Centromerus*; with yellowish prosoma and legs, whitish opisthosoma; labium broader than long, sternum heartshaped. Chelicerae with 3 large superior and 2 small inferior teeth, with few stridulatory grooves in the distal half; pedipalp without claw; legs 4, 1, 2, 3 (leg IV 2,82 mm long); TM IV absent, TM I 0,44; tibial spines 2221; long and thin tarsal claws, with few teeth. Lung opercula unsclerified; well developed colulus; epigyne, s. fig. 12.

Discussion: this species with reduced eyes, is, as *Anthrobia mammouthia* Tellkampf, 1844, one of the first described (and of the most poorly known) cave spiders. It was described from the Carter and Wyandotte caves in Kentucky and Indiana; it has been recorded from a very limited number of other caves in the same region. The illustrations by Emerton (1875), reproduced also by Packard (1888) are sufficient for its identification; as this species had been described as *Linyphia* (and has evidently nothing to do with this genus) Keyserling (1886) with practically no discussion instituted for it the genus *Phanetta* of which it is until now the only species.

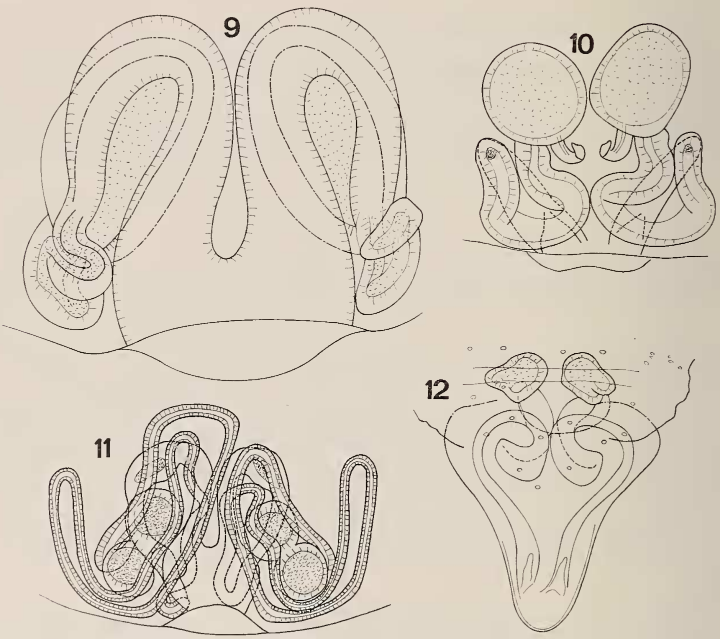
We know very little on this species (the ♂ is still unknown); following McIndoo (1911) it builds tiny webs or runs about on the floor of the caves.

From the characters I listed, the taxonomical position of this species is puzzling, if we compare it with the European forms; if we consider the genitalia it is impossible not to note a strong general similarity with those of the genus *Tachygyna* Chamberlin & Ivie, 1939, to a point that I feel it justified to propose a synonymy between the two genera **(syn. nov.)**. It is sufficient to compare my fig. 12 with those of *Phanetta vanconverana* (Chamberlin & Ivie, 1939) **comb. nov.** from Vancouver generotype of *Tachygyna*, *Ph. tuoba* (Chamberlin & Ivie, 1933) **comb. nov.** from Oregon, *Ph. pallida* (Chamberlin & Ivie, 1939) **comb. nov.** from Utah, *Ph. haydeni* (Chamberlin & Ivie, 1939) **comb. nov.** from Utah, *Ph. sima* (Chamberlin, 1948) **comb. nov.** from British Columbia, *Ph. watona* (Chamberlin, 1948) **comb. nov.** from Utah, *Ph. alaskensis* (Chamberlin & Ivie, 1947)

**comb. nov.** from Alaska; only the ♂ is known of *Ph. paita* (Chamberlin, 1948) **comb. nov.** from Utah, but it should also belong here (these species were all the known *Tachygyna*).

Near to *Phanetta* by the genitalia should be also *Tunagyna* Chamberlin & Ivie, 1933, with only *T. debilis* (Banks, 1892) (see van Helsdingen 1973).

For Chamberlin & Ivie (1939) *Tachygyna* was in some respects intermediate between *Tunagyna* and *Eulaira* Chamberlin & Ivie, 1933. Judging from the illustrations, most species of this last genus (distributed more or less as *Phanetta*) have a structure of the female genitalia not very different from the known *Phanetta*, but still sufficiently distinguishable for attributing them to a different genus. Of the known *Eulaira*, only *E. mana* Chamberlin & Ivie, 1935 from Utah is very similar to a *Phanetta*; two Southern species, *E. hidalgoana* Gertsch & Davis, 1937 from Mexico and *E. suspecta* Gertsch & Mulaik, 1936 possibly belong elsewhere.



*Cicurina brevis* (Emerton, 1889) — Fig. 9: vulva from the outside. *Achaearanea porteri* (Banks, 1896) — Fig. 10: vulva from the inside. *Cicurina robusta* Simon, 1886 — Fig. 11: vulva from the outside. *Phanetta subterranea* (Emerton, 1875) — Fig. 12: vulva from the outside. Drawn at different scales.

Accepting the synonymy *Tachygyna* = *Phanetta*, *Ph. subterranea* could be considered a Northern element as many European cave spiders (as for instance *Porrhomma*).

The other " famous " American cave spider, *Anthrobia mammouthia* Tellkampf, 1844 is even less known than *Phanetta subterranea*; probably also this species is a Northern " relict "; at least, judging by the illustrations in Emerton (1875) the ♂ pedipalp of *Anthrobia* has a tibia similar to that of *Zornella cultrigera* (L. Koch, 1879) (see Holm 1944); also some *Islandiana* as *I. lasalana* (Chamberlin & Ivie, 1935) and *I. mumai* Ivie, 1965 have a similar tibia.

## Fam. AGELENIDAE

### **Cicurina brevis** (Emerton, 1889) (fig. 9)

*C. b.*, CHAMBERLIN & IVIE 1940, *Bull. Univ. Utah*, 30(13), p. 29, pl. III figs. 16-17, pl. IX fig. 69.
Material: Kentucky, Gray's water cave, Park City, 23.III.77, Aellen & Strinati leg., 1 ♀ (MHNG).

Observations: CHAMBERLIN & IVIE (1940) in their formally excellent paper on the genus *Cicurina* have described a very large number of extremely similar forms as different species, apparently without considering the normal intra- and interpopulational variability. The few here published *Cicurina* do not correspond exactly to any of the many described forms; to suppose them new would in my opinion be identical to give a name to any collected individual. From the illustrations by CHAMBERLIN & IVIE (1940) it is difficult to understand why they considered belonging to the same species the four individuals of *C. intermedia* illustrated on plate V, figs. 31-34 and to a different one *(C. schultzi)* the individual of fig. 35 on the same plate. The same is true for many other forms; sometimes (*C. tortuba*, pl. VII, fig. 54) there are evident differences between the two halves of the same vulva.

For these reasons I give to this individual the oldest *American* name; at this moment I would not even exclude a synonymy of the whole *brevis*-group (including also *exlineae*, *breviaria*, *minnesota*, *minima* and *placida*) with the European *C. cicur*.

*C. brevis* is distributed from Eastern Canada to Virginia and Tennessee.

### **Cicurina robusta** Simon, 1886 (fig. 11)

*C. r.*, CHAMBERLIN & IVIE 1940, *Bull. Univ. Utah*, 30 (13), p. 68, pl. VII fig. 53, pl. XI, fig. 87.
Material: New Mexico, Carlsbad caverns, 16/17.XII.76, P. Strinati leg., 1 ♂ (MHNG).
— New Cave, 18.XII.76, P. Strinati leg., 4 ♀♀ (MHNG, coll. Brignoli).

Observations: what I said on *C. brevis* is valid also for this species; if we examine figs. 49 to 56 of CHAMBERLIN & IVIE it is difficult not to conclude that names have been given to isolated populations which in most cases are not at all distinguishable from each other (compare for instance figs. 52 and 53). Also in this case I use the oldest available name.

### **Tegenaria pagana** C. L. Koch, 1841

Material: New Mexico, Carlsbad caverns, 16/17.XII.76, P. Strinati leg., 2 ♂♂, 3 ♀♀, 1 ○ (MHNG, coll. Brignoli).

Observations: already known from the Carlsbad caves (as *Tegenaria antrias* Crosby; see also ROTH 1968). These individuals are identical with those I know from the Mediterranean (Italy, Greece, Morocco etc.).

### **Tegenaria chiricahuae** Roth, 1968

*T. ch.*, Roth, 1968, *Am. Mus. Novit.* 2323, p. 7 figs. 9-12.
Material: New Mexico, New Cave, 18.XII.76, P. Strinati leg., 2 ♂♂, 7 ♀♀ (MHNG, coll. Brignoli).

Observations: already known from New Mexico and Arizona.

## CONCLUSIONS

A few immatures of other groups were also in this collection, juveniles of *Ctenus* and *Euagrus* from the Cueva Chirrepeck and of a *Latrodectus* from the New Cave.

Even on such a limited material it could be observed that there is a striking general similarity, at family level, between the North American and the European cave spiders; the only difference is the uncommon presence in North American caves of large orb-weaving spiders as the common European *Meta*. The scattered presence of *Meta menardi* in caves of the USA and Japan suggests the possibility of an introduction from Europe.

## SUMMARY

From caves in Kentucky and New Mexico eight species are recorded; two from a cave in Guatemala. New are *Neoleptoneta novaegalleciae* n. sp. (♂, ♀ unknown; New Mexico, New Cave) of the " Texas fauna " sensu GERTSCH (1974) and *Gaucelmus strinatii* n. sp. (♀, ♂ unknown; Guatemala, Cueva Chirrepeck, Alta Verapaz) near to the generotype, *G. augustinus* Keyserling, 1884 (♀ illustrated on the types). The following new synonymies or combinations are proposed: *Gaucelmus santaanae* (Kraus, 1955) comb. nov. (described as *Theridion*); *Tachygyna* Chamberlin & Ivie, 1939 = *Phanetta* Keyserling, 1886 syn. nov.; all known *Tachygyna* are transferred to *Phanetta*; *Ph. subterranea* (Emerton, 1875) is illustrated (♀) and shortly described. Two *Cicurina* (*brevis* (Emerton, 1889) and *robusta* Simon, 1886) and *Achaearanea porteri* (Banks, 1896) are illustrated (♀♀); following the author most of the *Cicurina* described by CHAMBERLIN & IVIE (1940) are simple populations.

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